

**METHOD TO INITIATE MULTIPLE CHAMBER
DETONATION WAVE COMBUSTORS**

ABSTRACT OF THE DISCLOSURE

A pulse detonation wave engine (PDWE) detonation system provides for optical ignition. The detonation system has a plurality of detonation banks, where each detonation bank has a plurality of detonation chambers for receiving a fuel/oxidizer mixture from a propellant source. An optical ignition subsystem
5 generates a plurality of optical pulses. The detonation system also has an optical transport subsystem for transporting the optical pulses from the ignition subsystem to the chambers, where the optical pulses ignite each fuel/oxidizer mixture such that the chambers detonate in a desired order. This allows the banks to be sequentially detonated and the chambers within each bank to be
10 simultaneously detonated, without the increased tankage and toxic ignition associated with conventional approaches.

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